

Work Order ID 139942

Tuesday, December 15, 2015 7:21:16 AM

139942

PRELIMINARY ISSUE

DAS
9
9-89

Page 1

Item ID: D5371-2

Accept

N900040100

Setup Start

NS1

Revision ID: PRELIM

Item Name: Hook

Stop

NS2

Start Date: 12/15/2015 Start Qty: 3.00

3

Cust Item ID:

Required Date: 12/15/2015 Req'd Qty: 3.00

3

Customer:

Reference:

Approvals: Process Plan: MUS

Date: DEC 15 2015 Tooling:

Date:

Run Start

NR1

QC:

Date: SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D5371

100

100

Bandsaw

Jeaspa Bandsaw

BAND SAW

Memo

Cut Blanks at 3.250"

0.00

0.00

0.00

0.07

DAS

08

9-89

DAS

08

9-89

110

110

HAAS 5AXIS

HAAS CNC vertical machine #5

HAAS CNC VERTICAL MACHINING #1

Memo

1-Machine 1st op as per folio FB446

DWG REV: A4

FOLIO REV: AA

2- deburr and break all sharp edge as per dwg

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY							
Environment ☐	☐	No Re-verification ☐		☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong
Design ☐	☐	Operator ☐		☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions
Doc/Data ☐	☐	Offset/Setup ☐		☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance
Equip/Tooling ☐	☐	Supplier ☐		☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect
Handling/Pre ☐	☐	Training ☐		☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing
Material ☐	☐	Use for Testing ☐		☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved
Internal Transport ☐	☐	Poor Information ☐		☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing
Tribal Knowledge ☐	☐	Rushing ☐		☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish
LOA ☐	☐	Product Improvement ☐		☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread
Substation ☐	☐	Process Improvement ☐		☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence
Past Expiry Date ☐	☐	Manufacturing Process ☐		OTHER :							
Misidentified ☐	☐	Past Due ☐									

PRELIMINARY ISSUE

Work Order ID 139942

139942

Tuesday, December 15, 2015 7:21:16 AM

Item ID: D5371-2

Accept

N900040100

Setup Start *NS1*

Revision ID: PRELIM

Stop *NS2*

Item Name: Hook

Start Date: 12/15/2015 Start Qty: 3.00 *3*

Cust Item ID:

Required Date: 12/15/2015 Req'd Qty: 3.00 *3*

Customer:

Reference:

Approvals: Process Plan: Date: Tooling: Date:

Run Start *NR1*

QC: Date: SPC (Y/N): Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
115		0.00							DAS 14 9-89
115						3	0		15/12/16
HAAS 1	Memo	0.00							
HAAS CNC vertical machine #1	1-Machine 2nd op as per folio FB446 DWG REV: <u>PAY</u> FOLIO REV: <u>AA</u>								
	2- deburr and break all sharp edge as per dwg								
120	QC2- Inspect parts off machine FAI/FAIB	0.00							DAS 08 9-89
120						3	0		
QC	Memo	0.00							
Quality Control	<u>Inspect on CMM as per folio CMMMA027.</u> DWG REV: _____ CMM PROG. REV: _____								B.O 15/12/15
130	QC8- Inspect parts - second check	0.00							
130									③ 15-12-17 DD.
QC	Memo	0.00							
Quality Control									

POSITIVE RECALL

EFFECTIVE DEC 15 2015 AUTH MLS

RELEASED DD DATE 15-12-17

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐	Design ☐	Doc/Data ☐	Equip/Tooling ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Handling/Pre ☐	Material ☐	Internal Transport ☐	Tribal Knowledge ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
LOA ☐	Substation ☐	Past Expiry Date ☐	Misidentified ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
				Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
				Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
				Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
				Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
				Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
				Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
				Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
				OTHER : ☐			

Work Order ID 139942

Tuesday, December 15, 2015 7:21:16 AM

139942

PRELIMINARY ISSUE

Page 3

Item ID: D5371-2

Accept

N900040100

Setup Start *NS1*

Revision ID: PRELIM

Item Name: Hook

Stop *NS2*

Start Date: 12/15/2015 Start Qty: 3.00

3

Cust Item ID:

Required Date: 12/15/2015 Req'd Qty: 3.00

3

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

140

Chemical Conversion Coat per QSI005 4.1

0.00

140

HandFinish

Memo

3.60

Hand Finishing

3 0 15-12-17

150

Gloss Black (Alum) (Ref:QSI005 4.3.5.13)

0.00

150

Powdercoat

Memo

0.00

Powder Coating

START TIME:

1:25

OVEN TEMPERATURE:

FINISH TIME:

1:55

3 0 15-12-17

DMS 34 989

155

QC3- Inspect Part Finish

0.00

155

QC

Memo

0.00

Quality Control

③ 15-12-17 PD

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐					
		OTHER : ☐							

Work Order ID 139942

Tuesday, December 15, 2015 7:21:16 AM

139942

PRELIMINARY ISSUE

Page 4

Item ID: D5371-2

Accept

N900040100

Setup Start

NS1

Revision ID: PRELIM

Stop

NS2

Item Name: Hook

Start Date: 12/15/2015 Start Qty: 3.00

3

Cust Item ID:

Required Date: 12/15/2015 Req'd Qty: 3.00

3

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

180

Identify as per dwg & Stock Location: Relin.

0.00

180

Packaging

Memo

0.00

Packaging

③ 15-12-17 PD.

190

QC21- Final Inspection - Work Order Release

0.00

190

QC

Memo

0.01

Quality Control

JAN 26 2016

MLC

POSITIVE RECALL

EFFECTIVE 15-12-15 AUTH MLC

RELEASED ^{DAS} 9 DATE 16-01-22

for A

ECN16-510

① 15-12-18

DQA: _____ Date: _____

**WORK ORDER NON-CONFORMANCE / UPDATE**

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐		No Re-verification ☐		Pressure/Forced ☐		Temperature/Cure ☐	
Design ☐		Operator ☐		Bending ☐		Set-up ☐	
Doc/Data ☐		Offset/Setup ☐		Centre Not Concentric ☐		BOM/Route ☐	
Equip/Tooling ☐		Supplier ☐		Cracks ☐		Broken/Damage/Defect ☐	
Handling/Pre ☐		Training ☐		Crimp/Kink/Ripple/Wave ☐		Inspection Incomplete/Unqualified ☐	
Material ☐		Use for Testing ☐		Cuffs ☐		Contamination ☐	
Internal Transport ☐		Poor Information ☐		Crushing ☐		Countersink ☐	
Tribal Knowledge ☐		Rushing ☐		Heat Treat ☐		Cut Too Short ☐	
LOA ☐		Product Improvement ☐		Wave/Twist in Tube ☐		Instructions Incomplete/Unclear ☐	
Substation ☐		Process Improvement ☐		Marks/Chatter ☐		Drill Holes ☐	
Past Expiry Date ☐		Manufacturing Process ☐		OTHER :			
Misidentified ☐		Past Due ☐					

Picklist Print

Tuesday, December 15, 2015 7:21:21 AM

PRELIMINARY ISSUE

Page 1

Work Order ID: 139942

139942

Parent Item: D5371-2

D5371-2

Parent Item Name: Hook

Start Date: 12/15/2015

Required Date: 12/15/2015

Start Qty: 3.00

Required Qty: 3.00

Comments: IPP REV.A NEW ISSUE JFS 15/12/14 VERIFIED BY: JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M6061T6B1.000X06.00 0		Purchased	No			100	f	20.9200	0.271	0.855789			

M6061T6B1 000X06 000

**

6061T6 BAR 1.00 X 6.00

Location

Loc Qty

Loc Code

MAT003

20.92

m125771

2.33

m127797

5.92

m129530

2.92

→ m129639

8.33

m130013

1.42

.856

Conf 12/15

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

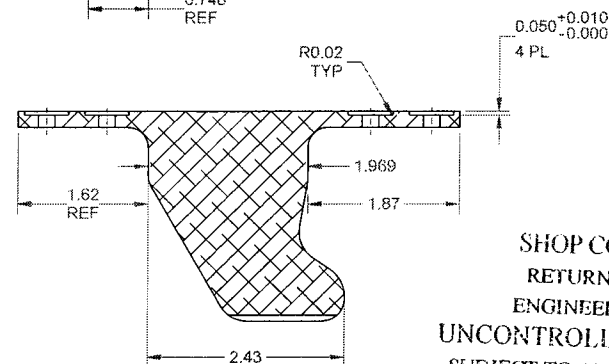
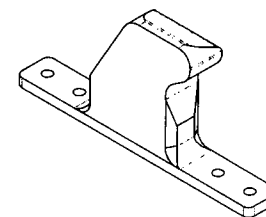
QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐	Design ☐	Doc/Data ☐	Equip/Tooling ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Handling/Pre ☐	Material ☐	Internal Transport ☐	Tribal Knowledge ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
LOA ☐	Substation ☐	Past Expiry Date ☐	Misidentified ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
				Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
				Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
				Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
				Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
				Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
				Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
				Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
				OTHER : ☐			

•



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 139942 MW

15-12-15

SECTION A-A

1) MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
REF DART SPEC M6061T6B

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT "BLACK SANDTEX" (4.3.5.7) PER DART QSI 005 4.3

3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED

4) UNITS: INCHES UNLESS OTHERWISE NOTED

5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX

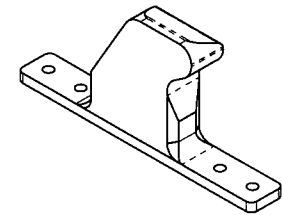
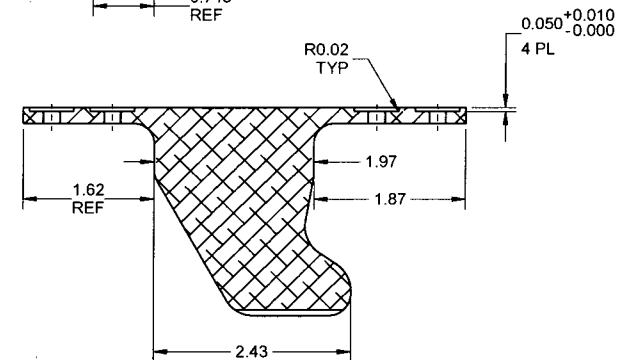
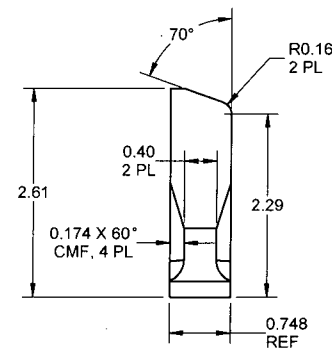
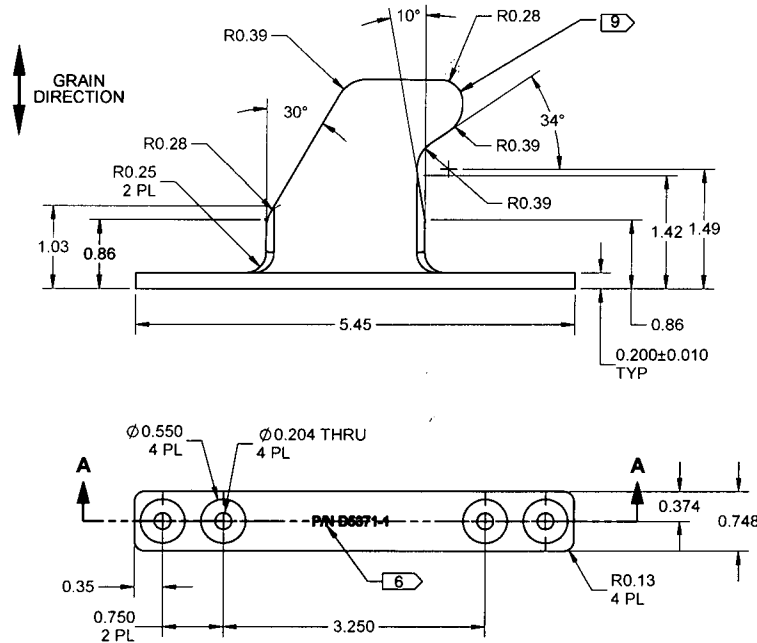
6) IDENTIFICATION: IDENTIFY PER QSI 044 6.3

7) WEIGHT: 0.36 lbs

8) UNDEFINED FEATURES CONTROLLED BY CAD FILE D5371-1.SLDPRT

PRELIMINARY ISSUE

A	NEW ISSUE		RF	15.12.03
REV.		DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE USA, INC.		
DRAWN	RF	EUGENE, OR		
CHECKED	AK	DRAWING NO.	REV. A4	
MFG. APPR.	JFS	D5371	SHEET 1 OF 2	
APPROVED		TITLE	SCALE	
DE APPR.		HOOK	NTS	
DATE	15.12.03	COPYRIGHT © 2015 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT THE WRITTEN PERMISSION OF DART AEROSPACE USA, INC.		



D5371-1 HOOK

SECTION A-A

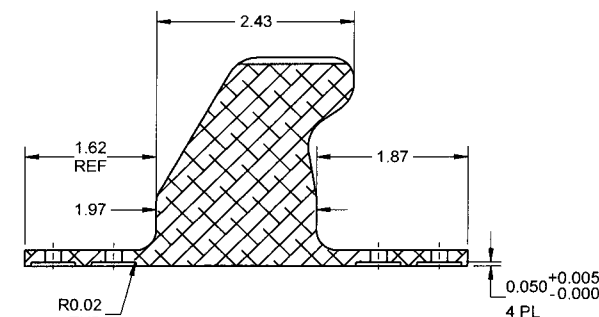
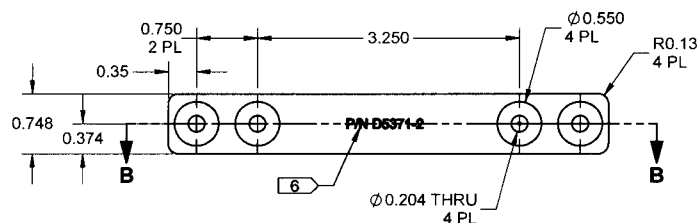
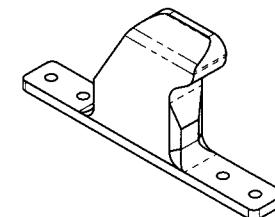
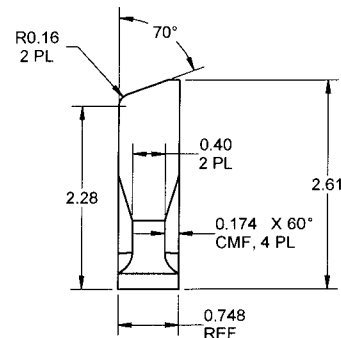
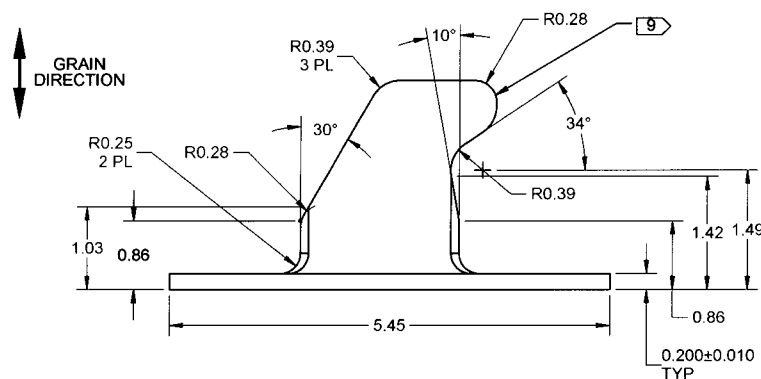
PRELIMINARY ISSUE

15.12.16 RF

NOTES:

- 1) MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
REF DART SPEC M6061T6B
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT "BLACK GLOSS" (4.3.5.13) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX UNLESS OTHERWISE NOTED
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.3
- 7) WEIGHT: 0.36 lbs
- 8) UNDEFINED FEATURES CONTROLLED BY CAD FILE D5371-1 Rev. A.SLDPRT
- 9) BREAK EDGES OF HOOK PROFILE 0.050 MINIMUM

APPROVED	A	NEW ISSUE	RF	15.12.03
	REV	DESCRIPTION	BY	DATE
	DESIGN	RF	DART AEROSPACE USA, INC.	
	DRAWN	RF	EUGENE, OR	
DATE	CHECKED	AK	DRAWING NO.	REV. A
	MFG. APPR.	JFS	D5371	SHEET 1 OF 2
	APPROVED	HS	TITLE	SCALE
	DE APPR.	DS	HOOK	NTS
15.12.03		COPYRIGHT © 2015 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.		



D5371-2 HOOK

NOTES:

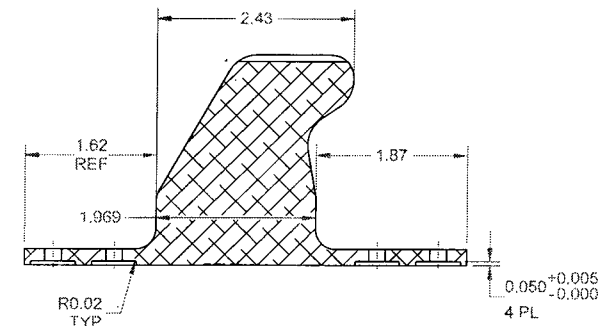
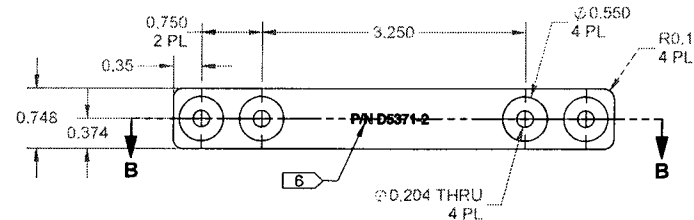
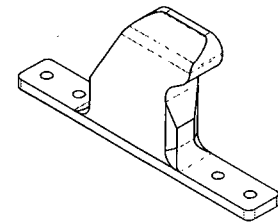
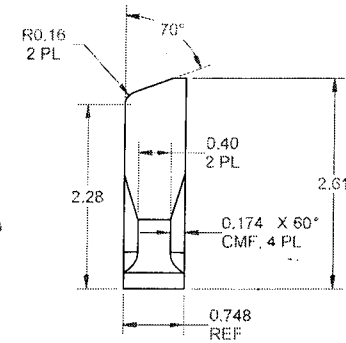
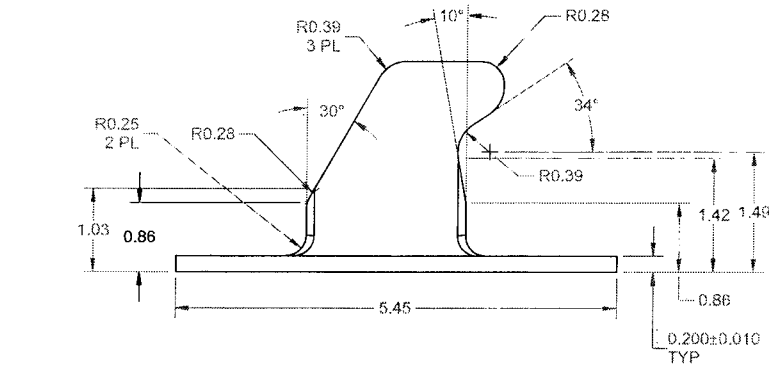
- 1) MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
REF DART SPEC M6061T6B
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT "BLACK GLOSS" (4.3.5.13) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX UNLESS OTHERWISE NOTED
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.3
- 7) WEIGHT: 0.36 lbs
- 8) UNDEFINED FEATURES CONTROLLED BY CAD FILE D5371-2 Rev. A.SLDPRT
- 9) BREAK EDGES OF HOOK PROFILE 0.050 MINIMUM

PRELIMINARY ISSUE

15.12.16 RF

APPROVED	DESIGN	RF	DART AEROSPACE USA, INC. EUGENE, OR	
	DRAWN	RF		
	CHECKED	AK	DRAWING NO.	REV. A
	MFG. APPR.	JFS	D5371	SHEET 2 OF 2
	APPROVED	HS	TITLE	SCALE
	DE APPR.	DS	HOOK	NTS
DATE		15.12.03	COPYRIGHT © 2015 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

PRELIMINARY ISSUE



SECTION B-B

D5371-2 HOOK

NOTES:

- 1) MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
REF DART SPEC M6061T6B
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT "BLACK SANDEXT" (4.3.5.7) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.3
- 7) WEIGHT: 0.36 lbs
- 8) UNDEFINED FEATURES CONTROLLED BY CAD FILE D5371-2.SLDPRT

PRELIMINARY ISSUE

DESIGN	RF	DART AEROSPACE USA, INC.	
DRAWN	RF	EUGENE, OR	
CHECKED	AK	DRAWING NO.	REV. A4
MFG. APPR.	JFS	D5371	SHEET 2 OF 2
APPROVED		TITLE	SCALE
DE APPR.		HOOK	NTS
DATE	15.12.03	COPYRIGHT © 2015 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.	

DART AEROSPACE LTD		Work Order: 139942
Description: HOOK		Part Number: D5371-Z
Inspection Dwg: D5371 Rev: PA4		Page 1 of 1

INSPECTION SHEET

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.86	+/-0.030	0.865	✓		H-6	31006
1.03	+/-0.030	1.028	✓		"	"
R0.25	+/-0.030	R0.250	✓		R-6	ref.
R0.28	+/-0.030	R0.281	✓		"	"
30°	+/-1/2°	30°	✓		Angle M.	CNC-17
R0.39	+/-0.030	R0.391	✓		R-6	ref.
10°	+/-1/2°	10°	✓		Angle M.	CNC-17
R0.28	+/-0.030	R0.281	✓		R-6	ref.
34°	+/-1/2°	34°	✓		Angle M.	CNC-17
R0.39	+/-0.030	R0.391	✓		R-6	ref.
1.42	+/-0.030	1.420	✓		H-6	31006
1.49	+/-0.030	1.502	✓		"	"
0.86	+/-0.030	0.865	✓		"	"
0.200	+/-0.010	0.207	✓		Mic	GA-03
2.28	+/-0.030	2.282	✓		H-6	31006
R0.16	+/-0.030	R0.156	✓		R-6	ref.
70°	+/-1/2°	70°	✓		Angle M.	CNC-17
0.40	+/-0.030	0.402	✓		Vern	GA-13
0.174 x 60°	+/-0.010 / +/-1/2°	0.172 x 60°	✓		"	"
2.61	+/-0.030	2.615	✓		"	"
0.748	+/-0.010	0.748	✓		Mic	GA-03
0.374	+/-0.010	0.374	✓		Vern	GA-13
0.35	+/-0.030	0.351	✓		"	"
0.750	+/-0.005	0.750	✓		"	"
3.250	+/-0.005	3.250	✓		"	"
Ø0.550	+0.008 / -0.001	Ø0.551	✓		"	"
R0.13	+/-0.030	R0.125	✓		R-6	ref.
Ø0.204	+0.005 / -0.001	Ø0.205	✓		Vern	GA-13
R0.02	+/-0.030	R0.015	✓		R-6	ref.
1.969	+/-0.010	1.968	✓		Vern	GA-13
2.43	+/-0.030	2.426	✓		H-6	31006
1.87	+/-0.030	1.865	✓		"	"

Measured by: D.A.	Checked by:	QC Inspector:
Date: 15/12/15	Date:	Date:

Engineering Approval: (If necessary)	Date:
--	--------------

Rev	Date	Change	Revised by	Approved
B	14.07.31	New Issue	KJ	

PRELIMINARY ISSUE

Purchase Order Receipt Listing

Friday, June 27, 2014 8:58:21 AM

Page 1 of 1

All amounts are calculated in domestic currency.

All Vendors PO ID PO24746 Receipt Dates from 6/27/2014 to 6/27/2014 All Line Item Types

All Item ID/GL/WOs All Rec. Employees All Currencies

Grouped by Vendor ID

[illegible]

B I L L O F L A D I N G

No: VIM 429936

Ship From:
THYSSENKRUPP MATERIAUX NA
4700 BOIS FRANC
ST. LAURENT, QC H4S 1A7
Tel: 514-337-0161 Fax: 514-745-2968

Ship Date 27Jun14 at 8:43 From VFW
Probill
Via RUSH VIM DELIVERY
FOB CONCORD
Frt PREPAID
Route 0- 0 Manifest
Vhcle Trailer
Slp STAN IVERS (905-532-1350)
Sold To: (20115)
DART AEROSPACE
1270 ABERDEEN ST
HAWKESBURY, ON K6A 1K7

Ship To: (1)
DART AEROSPACE
1270 ABERDEEN ST
HAWKESBURY, ON K6A 1K7
Tel: 613-632-9577 Fax: 613-632-1053

B I L L O F L A D I N G - REPRINT

1) Our Order PEC-696360- 1 Your PO # 34746

ALUMINUM FLAT BAR 6061-T6511

1.00" X 6.00" X 144.0000"

	Heat Number	Tag No	Quantity	PCS	Wt LBS
BDLE#1 R505	388184	165518	96 FT	8	669

2) Our Order PEC-696360- 2 Your PO # 34746

ALUMINUM FLT BAR ECONOPLT 6061-T6511

1.00" X 12.00" X 144.0000"

B/O 1 PC

	Heat Number	Tag No	Quantity	PCS	Wt LBS
PLANCHE#1	R505Z00014061	305305	24 FT	2	333
PLANCHE#1	- Z00014060	305306	12 FT	1	167
PLANCHE#1	Z00014061	305307	12 FT	1	168
Total:			48 FT	4	668

TOTAL:	Tags	PCS	LBS
	4	12	1337

Heat Number
Z00014060
Z00014061

*** Chemical Analysis ***

MILL TEST REPORTS, PACKING SLIPS ARE TO SENT
WITH MATERIAL AND FAXED TO THE CUSTOMER PRIOR
TO SHIPPING.

ATTN: CHANTAL/LINDA

** ALL PACKING SLIPS MUST HAVE THE HEAT NUMBER **

Page: 1Continued

TOUTES ERREURS ET/OU MARCHANDISES MANQUANTES DOIVENT ETRE
RAPPORTEES IMMEDIATEMENT

ERRORS OR SHORTAGE MUST BE REPORTED IMMEDIATELY

RETOUR DE MARCHANDISES AVEC NOTRE NUMERO D'APPROBATION SEULEMENT
MERCHANDISE MAY NOT BE RETURNED WITHOUT OUR APPROVAL NUMBER

RECU EN BONNE CONDITIONS / RECEIVED IN GOOD CONDITION

DATE

THYSSENKRUPP MATERIALS NA

DART AEROSPACE
ALUMINUM FLAT BAR 6061-T6511
1.00" x 6.00" X 144.0000"
PART NO.

PO/Ref 34745
Nous certifions que le document reproduit ici est
une copie conforme du rapport fourni par le
producteur du matériel ou les données résultant de

Certificate of Mill Test Results

BL VIM-429936-001

26Jun14
Pg 1/1

L'analyse faite par un laboratoire qualifié.
SIGNÉ PAR



LB ALUMINIUM BERHAD
(138335-V)



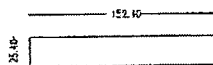
ALUMINIUM EXTRUSION

TEST CERTIFICATE

14/06/27

CUSTOMER: THYSSENKRUPP MATERIALS NA	SECTION NO.: PE01415MF03660	DATE: Feb-06-2014
SALES ORDER NO.: 1391873	WORK ORDER: 388184	ALLOY: 6061-T6511
PRESS NO.: 4000	EXTRUSION DATE: Jan-28-2014	CERTIFICATE NO.: MCERT1401038
CUSTOMER PO NO.: VIM-624324		

Section Sketch:



Thickness = 25.40 mm

CHEMICAL COMPOSITION										
Composition	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Al	Analysis Ref.-
Min	0.40	0.00	0.15	0.00	0.80	0.04	0.00	0.00	Remainder	26656
Max	0.80	0.70	0.40	0.15	1.20	0.35	0.25	0.15		Dec-05-2013
Actual	0.602	0.207	0.223	0.031	0.947	0.046	0.017	0.015		

MECHANICAL PROPERTIES (Result shown is tested by LBALUM)			
	Tensile Strength N/mm ²	Yield Stress N/mm ²	Elongation (%)
Standard	260	240	10
Result	365.35	349.90	16.78

Compliance with ASTM B221M-07

We hereby certify that the material covered by this report has been verified or tested according to the refer standard sampling method or the requirements of any specifications or requirements described herein, and that sample representative of the material met the construction limits and had the mechanical properties shown. Also, note that accuracy is not a normal consideration in aluminum alloys. Neither mercury nor any of its compounds are used in the manufacture of our extrusion. This certificate conforms to 3.1, EN 10204

** This certificate of Analysis has been produced electronically and is valid without signature **

Lor 11, Jalan Perusahaan 1, Kawasan Perusahaan Beranang, 43700 Beranang, Selangor Darul Ehsan, Malaysia.
Tel: 603-8723 8822 (15 Lines) Fax: 603-8723 3191 (General), 8723 7272 (Sales), 8727 1218 (Export)
Enquiry@lbalum.com.my www.lbalum.com



Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO24746

Purchase Order Date 6/24/2014

PO Print Date 6/27/2014

Page Number 1 of 3

Order From : VC-COP001
THYSSENKRUPP MATERIALS CA LTD
O/A VPK METAL- C/O T27540/PO BOX 4275,POSTAL "A"
TORONTO, ON M5W 5V8
CA

Ship To : DART AEROSPACE LTD
1270 ABERDEEN
HAWKESBURY, ON K6A 1K7
CANADA

REVISED

Contact Name		Buyer	Chantal Lavoie
Vendor Phone	905 669 9444	Customer POID	
		Customer Tax #	10127-2607
Ship To Contact		Terms	Net 30
Ship To Phone		Currency	CAD
Ship Via:	VENDOR'S TRUCK	FOB	FCA - (Free Carrier)
Ship Acct:			

Line Nbr	Reference Vendor Part Number Line Comments Delivery Comments	Description/ Mfg ID	Req Date/ Taxable Promise Date	CD	Req Qty/ Unit of Measure	PO Unit Price	Extended Price
1	M6061T6B1.000X06.000	6061T6 BAR 1.00 X 6.00	6/27/2014 Yes 6/27/2014		96.00 f	\$15.05	\$1,444.80
MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM BAR AS PER QQ-A-225/8 OR AMS-QQ-A-225/8 OR AMS 4117/4128/4115/4116 OR QQ-A-200/8 OR AMS-QQ-A-200/8 OR AMS 4160 OR ASTM B211 OR ASTM B221							

SP 14-6-27

Line Total: \$1,444.80

2	M6061T6B1.000X12.000	6061-T6 Bar 1.00 x 12.00	6/27/2014 Yes 6/27/2014		96.00 f	\$29.65	\$2,845.92
MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM BAR AS PER QQ-A-225/8 OR AMS-QQ-A-225/8 OR AMS 4117/4128/4115/4116 OR QQ-A-200/8 OR AMS-QQ-A-200/8 OR AMS 4160 OR ASTM B211 OR ASTM B221							

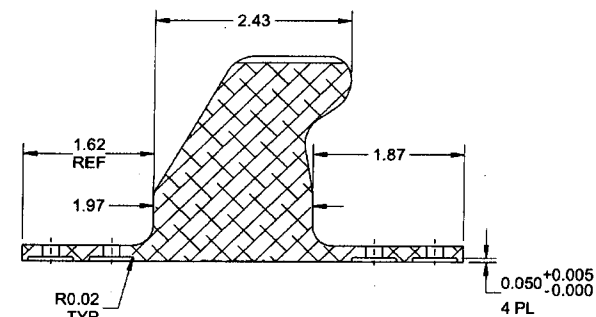
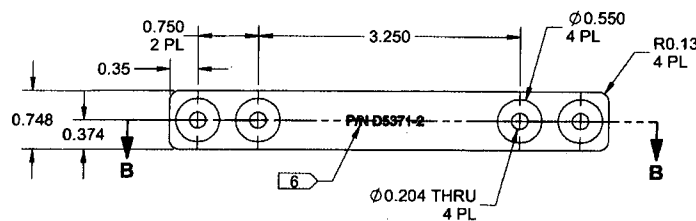
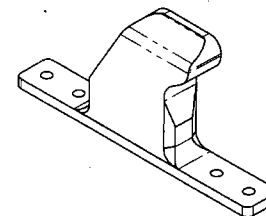
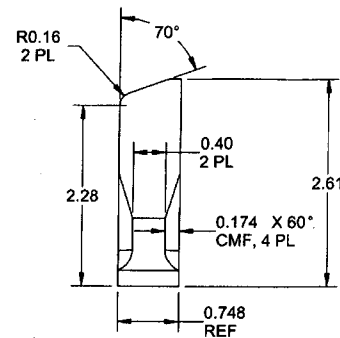
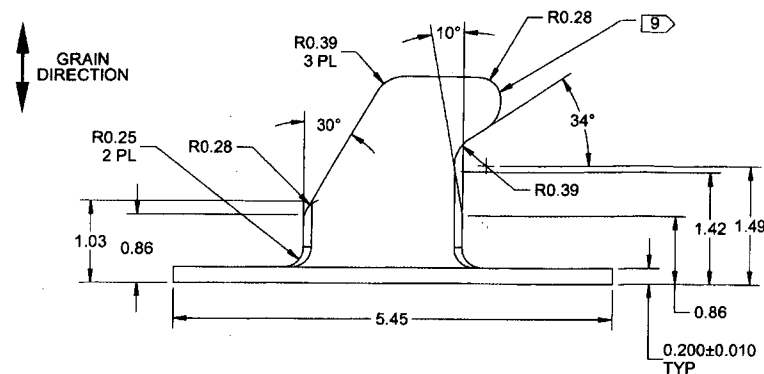
*recu 96
Back order de 12 f.*

Line Total: \$2,845.92

PO Instructions: ORDER # PEC ST-696360
ORDER # PEC ST-696363

Note:

6/27/2014



SECTION B-B

D5371-2 HOOK

NOTES:

- 1) MATERIAL: 6061-T6/T651/T6510/T6511/T62 ALUMINUM BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B221
REF DART SPEC M6061T6B
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT "BLACK GLOSS" (4.3.5.13) PER DART QSI 005 4.3
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX UNLESS OTHERWISE NOTED
- 6) IDENTIFICATION: IDENTIFY PER QSI 044 6.3
- 7) WEIGHT: 0.36 lbs
- 8) UNDEFINED FEATURES CONTROLLED BY CAD FILE D5371-2 Rev. A.SLDPRT
- 9) BREAK EDGES OF HOOK PROFILE 0.050 MINIMUM

DESIGN	RF	DART AEROSPACE USA, INC. EUGENE, OR	
DRAWN	RF		
CHECKED	AK	DRAWING NO.	REV. A
MFG. APPR.	JFS	D5371	SHEET 2 OF 2
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	HOOK	NTS
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12-10-9102
RELEASED